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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/838,082	04/19/2001	Koji Kato	OOCL-59 (IMS-01S0374)	9580

26479 7590 04/08/2005

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EXAMINER

GENCO, BRIAN C

ART UNIT

PAPER NUMBER

2615

DATE MAILED: 04/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/838,082	KATO ET AL.	
	Examiner	Art Unit	
	Brian C Genco	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>4/19/01</u> . | 6) <input type="checkbox"/> Other: _____ |

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Applicant is correct in the assertion that all of the pending claims are readable on Fig. 9.

As such, all of the pending claims are examined herein below.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 3, 4, 11, 12, 18, and 19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

In regards to claims 3, 11, and 18 Examiner notes page 13, line 23 – page 14, line 9 of the specification wherein there is no description in the specification to enable the limitation that the circuit board intimately contacts with the second face of the plate member. Examiner concedes that these elements, namely plate element 63 and circuit board element 33, are clearly illustrated in the drawings as being in close proximity to one another, but not necessarily in intimate contact with each other. Examiner requests Applicant to consider the effects of applying the heat of plate element 63 directly to the circuit board element 33. Since Applicant did not disclose that the drawings were to scale, then the drawings cannot be relied upon to teach that elements 63 and 33 are in intimate contact with one another. See MPEP § 2125.

Claims 4, 12, and 19 depend from claims 3, 11, and 18 respectively.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6, 9-14, and 17-20 are rejected under 35 U.S.C. 102(b) as being anticipated by (JP 09-065348 to Matsunaga).

In regards to claim 1 Matsunaga discloses an electronic camera comprising:

a photographic lens configured to form an object image (e.g., the prism element 2 of Figs. 1 and 2);

an image sensing element configured to photoelectrically convert the formed object image (e.g., element 3 of Figs. 1 and 2);

a light guiding device configured to guide incident light from an object, which is incident from the photographic lens, to a first optical path to the image sensing element, and a second optical path different from the first optical path (e.g., prism element 2 of Figs. 1 and 2; paragraph 0004 of the translation);

a holding frame structure configured to surround the image sensing element and the light guiding device (e.g., elements 5, 6, 8-16, and 16' of Figs. 1 and 2; paragraphs 0015-0019 and 0023 of the translation), the holding frame structure comprising an intimately contacting member made of heat-conducting material and intimately contacting with the image sensing element (e.g., element 6 of Figs. 1 and 2 wherein it is metal as described on paragraph 0015 of the translation);

a lens casing configured to accommodate the photographic lens, the lens casing comprising a heat-radiating portion made of heat-conducting material and configured to radiate heat to an outside of the camera (e.g., the camber box body element 1 is a lens casing as shown in Figs. 1 and 2);

wherein the holding frame structure and the lens casing are arranged such that the heat from the intimately contacting member is conducted to the heat-radiating portion (e.g., Figs. 1 and 2; paragraph 0019 of the translation).

In regards to claim 2 Matsunaga discloses the camera according to claim 1, wherein the holding frame structure comprising the intimately contacting member formed of a plate member, and a heat-transfer frame member formed of a box member, which is made of heat-conducting material, surrounds the light guiding device, and is thermally connected to the intimately contacting member, and wherein the heat-radiating portion is thermally connected to the heat-transfer frame member (e.g., elements 8-16 and 16' of Figs. 1 and 2; paragraphs 0015-0019 and 0023 of the translation; Examiner notes that element 6 and elements 8-16 and 16' are thermally connected to each other at least through both of them being thermally connected to the image sensor 3);

In regards to claim 3 Matsunaga discloses the camera according to claim 2 wherein the plate member has a first face facing the light guiding device, and a second face on the reverse of the first face, the image sensing element intimately contacts with the first face, and a circuit board intimately contacts with the second face (e.g., see Figs. 1 and 2, wherein element 4 is a circuit board and as shown in Fig. 2 the plate member element 6 is intimately contacting both the image sensor and the circuit board).

In regards to claim 4 see paragraphs 0005 and 0014.

In regards to claim 5 Examiner notes that the prism element 2 is a light splitting device.

In regards to claim 6 Examiner notes that the prism is a beam splitter.

In regards to claim 9 Matsunaga discloses an electronic camera comprising:

a photographic lens configured to form an object image (e.g., the prism element 2 of Figs. 1 and 2);

an image sensing element configured to photoelectrically convert the formed object image (e.g., element 3 of Figs. 1 and 2);

a light guiding device configured to guide incident light from an object, which is incident from the photographic lens, to a first optical path to the image sensing element, and a second optical path different from the first optical path (e.g., prism element 2 of Figs. 1 and 2; paragraph 0004 of the translation);

a holding frame structure configured to surround the image sensing element and the light guiding device (e.g., elements 5, 6, 8-16, and 16' of Figs. 1 and 2; paragraphs 0015-0019 and 0023 of the translation), the holding frame structure comprising an intimately contacting member made of heat-conducting material and intimately contacting with the image sensing element (e.g., element 6 of Figs. 1 and 2 wherein it is metal as described on paragraph 0015 of the translation);

an outer casing configured to accommodate the image sensing element, the light guiding device, and the holding frame structure, the outer casing comprising a heat-radiating portion made of heat-conducting material and configured to radiate heat to an outside of the camera (e.g., camera box body element 1; paragraphs 0007 and 0019 of the translation),

a lens casing configured to accommodate the photographic lens, the lens casing comprising a heat-radiating portion made of heat-conducting material and configured to radiate heat to an outside of the camera (e.g., the camber box body element 1 is also a lens casing);

wherein the holding frame structure and the outer casing, and the lens casing are arranged such that the heat from the intimately contacting member is conducted to both the heat-radiating portions (e.g., Figs. 1 and 2 wherein since the outer casing and the lens casing are the same element the heat is conducted to both heat-radiating portions; paragraph 0019 of the translation).

In regards to claim 10 Matsunaga discloses the camera according to claim 9, wherein the holding frame structure comprising the intimately contacting member formed of a plate member, and a heat-transfer frame member formed of a box member, which is made of heat-conducting material, surrounds the light guiding device, and is thermally connected to the intimately contacting member, and wherein both the heat-radiating portions are thermally connected to the heat-transfer frame member (e.g., elements 8-16 and 16' of Figs. 1 and 2; paragraphs 0015-0019 and 0023 of the translation; Examiner notes that element 6 and elements 8-16 and 16' are thermally connected to each other at least through both of them being thermally connected to the image sensor 3).

In regards to claim 11 Matsunaga discloses the camera according to claim 10 wherein the plate member has a first face facing the light guiding device, and a second face on the reverse of the first face, the image sensing element intimately contacts with the first face, and a circuit board intimately contacts with the second face (e.g., see Figs. 1 and 2, wherein element 4 is a circuit board and as shown in Fig. 2 the plate member element 6 is intimately contacting both the image sensor and the circuit board).

In regards to claim 12 see paragraphs 0005 and 0014.

In regards to claim 13 Examiner notes that the prism element 2 is a light splitting device.

In regards to claim 14 Examiner notes that the prism is a beam splitter.

In regards to claim 17 Matsunaga discloses an electronic camera comprising:

a photographic lens configured to form an object image (e.g., the prism element 2 of Figs. 1 and 2);

an image sensing element configured to photoelectrically convert the formed object image (e.g., element 3 of Figs. 1 and 2);

a light guiding device configured to guide incident light from an object, which is incident from the photographic lens, to a first optical path to the image sensing element, and a second optical path different from the first optical path (e.g., prism element 2 of Figs. 1 and 2; paragraph 0004 of the translation);

a holding frame structure configured to surround the image sensing element and the light guiding device (e.g., elements 5, 6, 8-16, and 16' of Figs. 1 and 2; paragraphs 0015-0019 and 0023 of the translation), the holding frame structure comprising an intimately contacting member made of heat-conducting material and intimately contacting with the image sensing element (e.g., element 6 of Figs. 1 and 2 wherein it is metal as described on paragraph 0015 of the translation), and a heat-transfer frame member formed of a box member, which is made of heat-conducting material, surrounds the light guiding device, and is thermally connected to the intimately contacting member (e.g., elements 8-16 and 16' of Figs. 1 and 2; paragraphs 0015-0019 and 0023 of the translation; Examiner notes that element 6 and elements 8-16 and 16' are

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thermally connected to each other at least through both of them being thermally connected to the image sensor 3);

an outer casing configured to accommodate the image sensing element, the light guiding device, and the holding frame structure, the outer casing comprising a heat-radiating portion made of heat-conducting material and configured to radiate heat to an outside of the camera (e.g., camera box body element 1; paragraphs 0007 and 0019 of the translation),

wherein the holding frame structure and the outer casing are arranged such that the heat-radiating portion is thermally connected to the heat-transfer frame member, and heat from the intimately contacting member is conducted to the heat-radiating portion (e.g., Figs. 1 and 2; paragraph 0019 of the translation).

In regards to claim 18 Matsunaga discloses the camera according to claim 17, wherein the plate member has a first face facing the light guiding device, and a second face on the reverse of the first face, the image sensing element intimately contacts with the first face, and a circuit board intimately contacts with the second face (e.g., see Figs. 1 and 2, wherein element 4 is a circuit board and as shown in Fig. 2 the plate member element 6 is intimately contacting both the image sensor and the circuit board).

In regards to claim 19 see paragraphs 0005 and 0014.

In regards to claim 20 Examiner notes that the prism element 2 is a light splitting device.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over (JP 08-009208 Tomita) in view of (USPN 6,778,218 to Higuchi et al.).

In regards to claim 1 Tomita discloses an electronic camera comprising:

a photographic lens configured to form an object image (e.g., element 1 of Fig. 1);

an image sensing element configured to photoelectrically convert the formed object image (e.g., element 3 of Fig. 1);

a light guiding device configured to guide incident light from an object, which is incident from the photographic lens, to the image sensing element (e.g., elements 1 and 2 of Fig. 1);

a holding frame structure configured to surround the image sensing element and the light guiding device (e.g., the holding frame structure comprises elements 4-6 of Fig. 1), the holding frame structure comprising an intimately contacting member made of heat-conducting material and intimately contacting with the image sensing element (e.g., Fig. 1, wherein the intimately contacting member is element 4 of Fig. 1);

a lens casing configured to accommodate the photographic lens, the lens casing comprising a heat-radiating portion made of heat-conducting material and configured to radiate heat to an outside of the camera (e.g., elements 5 and 6 of Fig. 1),

wherein the holding frame structure and the lens casing are arranged such that the heat from the intimately contacting member is conducted to the heat-radiating portion (e.g., abstract, paragraph 0009 of the translation, Fig. 1).

Tomita does not disclose nor preclude a light guiding device configured to guide incident light from an object, which is incident from the photographic lens, to a first optical path to the image sensing element, and a second optical path different from the first optical path.

Examiner notes that it is notoriously well known in the art to provide a beam splitter such that light from an object is directed to both an image sensing device and an optical view finder so as to enable a user to verify a desired scene with no parallax and with less power usage than an electronic view finder as is disclosed by Higuchi (e.g., column 1, lines 9-16). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have included a beam splitter in the optical assembly of Tomita so as to enable a user to verify a desired scene with no parallax and with less power usage than an electronic view finder.

In regards to claim 2 Tomita discloses the camera according to claim 1, wherein the holding frame structure comprising the intimately contacting member formed of a plate member (e.g., element 4), and a heat-transfer frame member formed of a box member (e.g., element 5 of Fig. 1, wherein according to Merriam Webster's Collegiate Dictionary a member is defined as "a constituent part of a whole", wherein element 5 is a plate and as such forms one side of a box and is therefore a box member), which is made of heat-conducting material, surrounds the light guiding device, and is thermally connected to the intimately contacting member, and wherein the heat-radiating portion is thermally connected to the heat-transfer frame member (e.g., abstract, paragraph 0009 of the translation, Fig. 1).

In regards to claim 3 Tomita discloses the camera according to claim 2, wherein the plate member has a first face facing the light guiding device, and a second face on the reverse of the first face, the image sensing element intimately contacts with the first face, and a circuit board

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intimately contacts with the second face (e.g., Examiner notes that it is an implicit feature of Tomita's invention to have a circuit board associated with the image sensor element 3 so as to supply control signals and power, and read off the image signals. Further, Examiner notes that it is implicit that the heat conducting plate element 4 of Fig. 1 would be positioned between the image sensor element 3 and the circuit board so as to remove the heat from the image sensor).

In regards to claim 4 see Examiners notes on the rejection of claim 3.

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over (USPN 4,972,265 to Tanaka et al.) in view of (JP 08-009208 Tomita).

In regards to claim 1 Tanaka discloses an electronic camera comprising:

a photographic lens configured to form an object image (e.g., element 1 of Fig. 1A);

an image sensing element configured to photoelectrically convert the formed object image (e.g., element 9 of Fig. 1A);

a light guiding device configured to guide incident light from an object, which is incident from the photographic lens, to a first optical path to the image sensing element, and a second optical path different from the first optical path (e.g., elements 3 and 4 of Fig. 1A);

a lens casing configured to accommodate the photographic lens (e.g., the lens casing is inherent to the lens element 1 of Fig. 1A).

Tanaka does not disclose nor preclude the claimed holding frame structure, that the lens casing comprises a heat-radiating portion made of heat-conducting material and configured to radiate heat to an outside of the camera, or that the holding frame structure and the lens casing

are arranged such that the heat from the intimately contacting member is conducted to the heat-radiating portion.

Tomita discloses a holding frame structure configured to surround the image sensing element and the light guiding device (e.g., the holding frame structure comprises elements 4-6 of Fig. 1), the holding frame structure comprising an intimately contacting member made of heat-conducting material and intimately contacting with the image sensing element (e.g., Fig. 1, wherein the intimately contacting member is element 4 of Fig. 1);

a lens casing configured to accommodate the photographic lens, the lens casing comprising a heat-radiating portion made of heat-conducting material and configured to radiate heat to an outside of the camera (e.g., elements 5 and 6 of Fig. 1),

wherein the holding frame structure and the lens casing are arranged such that the heat from the intimately contacting member is conducted to the heat-radiating portion (e.g., abstract, paragraph 0009 of the translation, Fig. 1).

Tomita discloses to have this structure in order to cool the image sensor and thus decrease noise in accordance with the disclosure on paragraph 0003 of the translation, while channeling the heat to the lens so as to prevent the formation of dew on the surface of the lens as disclosed on paragraph 0007 and 0012 of the translation.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized Tomita's cooling structure in order to cool the image sensor and thus decrease noise, while channeling the heat to the lens so as to prevent the formation of dew on the surface of the lens.

In regards to claim 2 Tomita discloses the camera according to claim 1, wherein the holding frame structure comprising the intimately contacting member formed of a plate member (e.g., element 4), and a heat-transfer frame member formed of a box member (e.g., element 5 of Fig. 1, wherein according to Merriam Webster's Collegiate Dictionary a member is defined as "a constituent part of a whole", wherein element 5 is a plate and as such forms one side of a box and is therefore a box member), which is made of heat-conducting material, surrounds the light guiding device, and is thermally connected to the intimately contacting member, and wherein the heat-radiating portion is thermally connected to the heat-transfer frame member (e.g., abstract, paragraph 0009 of the translation, Fig. 1).

In regards to claim 3 Tomita discloses the camera according to claim 2, wherein the plate member has a first face facing the light guiding device, and a second face on the reverse of the first face, the image sensing element intimately contacts with the first face, and a circuit board intimately contacts with the second face (e.g., Examiner notes that it is an implicit feature of Tomita's invention to have a circuit board associated with the image sensor element 3 so as to supply control signals and power, and read off the image signals. Further, Examiner notes that it is implicit that the heat conducting plate element 4 of Fig. 1 would be positioned between the image sensor element 3 and the circuit board so as to remove the heat from the image sensor).

In regards to claim 4 see Examiners notes on the rejection of claim 3.

In regards to claims 5-8 see Fig. 1A and column 3, line 67 – column 4, line 3 and column 4, lines 64-67 of Tanaka.

Claims 9, 10, and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over (USPN 4,972,265 to Tanaka et al.) in view of (JP 11-341321 to Higuchi) in view of (JP 08-009208 Tomita).

In regards to claim 9 Tanaka discloses an electronic camera comprising:

- a photographic lens configured to form an object image (e.g., element 1 of Fig. 1A);
- an image sensing element configured to photoelectrically convert the formed object image (e.g., element 9 of Fig. 1A);
- a light guiding device configured to guide incident light from an object, which is incident from the photographic lens, to a first optical path to the image sensing element, and a second optical path different from the first optical path (e.g., elements 3 and 4 of Fig. 1A);
- an outer casing configured to accommodate the image sensing element and the light guiding device (e.g., the outer casing is inherent to the camera illustrated in Fig. 1A);
- a lens casing configured to accommodate the photographic lens (e.g., the lens casing is inherent to the lens element 1 of Fig. 1A).

Tanaka does not disclose nor preclude the claimed holding frame structure, that the lens casing and outer casing comprise heat-radiating portions made of heat-conducting material and configured to radiate heat to an outside of the camera, or that the holding frame structure, the outer casing, and the lens casing are arranged such that the heat from the intimately contacting member is conducted to the heat-radiating portions.

Higuchi discloses a holding frame structure configured to surround the image sensing element and the light guiding device (e.g., elements 1, 2, and 6 of Figs. 1 and 2), the holding

frame structure comprising an intimately contacting member made of heat-conducting material and intimately contacting with the image sensing element (e.g., element 6 of Figs. 1 and 2);

an outer casing configured to accommodate the image sensing element, the light guiding device, and the holding frame structure, the outer casing comprising a heat-radiating portion made of heat-conducting material and configured to radiate heat to an outside of the camera (e.g., element 2 of Fig. 1 wherein the heat-radiating portion is element 15 of Fig. 1).

Higuchi discloses to utilize this structure in order to improve the heat dissipating effectiveness of an image sensor (e.g., paragraph 0055 of the machine translation). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize Higuchi's structure in order to improve the heat dissipating effectiveness of Tanaka's image sensor.

Tomita also discloses a holding frame structure configured to surround the image sensing element and the light guiding device (e.g., the holding frame structure comprises elements 4-6 of Fig. 1), the holding frame structure comprising an intimately contacting member made of heat-conducting material and intimately contacting with the image sensing element (e.g., Fig. 1, wherein the intimately contacting member is element 4 of Fig. 1).

Tomita further discloses a lens casing configured to accommodate the photographic lens, the lens casing comprising a heat-radiating portion made of heat-conducting material and configured to radiate heat to an outside of the camera (e.g., elements 5 and 6 of Fig. 1),

wherein the holding frame structure and the lens casing are arranged such that the heat from the intimately contacting member is conducted to the heat-radiating portion (e.g., abstract, paragraph 0009 of the translation, Fig. 1).

Tomita discloses to have this structure in order to cool the image sensor and thus decrease noise in accordance with the disclosure on paragraph 0003 of the translation, while channeling the heat to the lens so as to prevent the formation of dew on the surface of the lens as disclosed on paragraph 0007 and 0012 of the translation.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have made Higuchi's lens barrel element 1 as illustrated in Fig. 1 heat conductive as suggested by Tomita in order to further cool Tanaka's image sensor and thus decrease noise, while also channeling the heat to the lens so as to prevent the formation of dew on the surface of the lens.

In regards to claim 10 Tanaka in view of Higuchi in view of Tomita discloses the camera according to claim 9, wherein the holding frame structure comprising the intimately contacting member formed of a plate member (e.g., element 7 of element 6 of Higuchi as illustrated in Figs. 1 and 2), and a heat-transfer frame member formed of a box member, which is made of heat-conducting material, surrounds the light guiding device, and is thermally connected to the intimately contacting member (e.g., elements 1, 2, and 6 of Figs. 1 and 2 form the claimed box member), and wherein both the heat-radiating portions are thermally connected to the heat-transfer frame member (e.g., elements 1, 2, and 6 are all thermally connected).

In regards to claims 13-15 see Fig. 1A and column 3, line 67 – column 4, line 3 and column 4, lines 64-67 of Tanaka.

Claims 17, 20, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over (USPN 4,972,265 to Tanaka et al.) in view of (JP 11-341321 to Higuchi).

In regards to claim 17 Tanaka discloses an electronic camera comprising:

- a photographic lens configured to form an object image (e.g., element 1 of Fig. 1A);
- an image sensing element configured to photoelectrically convert the formed object image (e.g., element 9 of Fig. 1A);
- a light guiding device configured to guide incident light from an object, which is incident from the photographic lens, to a first optical path to the image sensing element, and a second optical path different from the first optical path (e.g., elements 3 and 4 of Fig. 1A);
- an outer casing configured to accommodate the image sensing element and the light guiding device (e.g., the outer casing is inherent to the camera illustrated in Fig. 1A).

Tanaka does not disclose nor preclude the claimed holding frame structure, that the outer casing comprise a heat-radiating portion made of heat-conducting material and configured to radiate heat to an outside of the camera, or that the holding frame structure and the outer casing are arranged such that the heat from the intimately contacting member is conducted to the heat-radiating portion.

Higuchi discloses a holding frame structure configured to surround the image sensing element and the light guiding device (e.g., elements 1, 2, and 6 of Figs. 1 and 2), the holding frame structure comprising an intimately contacting member formed of a plate member, which is made of heat-conducting material and intimately contacting with the image sensing element (e.g., plate member element 7 of element 6 of Figs. 1 and 2), and a heat-transfer frame member formed of a box member, which is made of heat-conducting material, surrounds the light guiding device and is thermally connected to the intimately contacting member (e.g., elements 1, 2, and 6 of Figs. 1 and 2 form the claimed box member);

an outer casing configured to accommodate the image sensing element, the light guiding device, and the holding frame structure, the outer casing comprising a heat-radiating portion made of heat-conducting material and configured to radiate heat to an outside of the camera (e.g., element 2 of Fig. 1 wherein the heat-radiating portion is element 15 of Fig. 1);

wherein the holding frame structure and the outer casing are arranged such that the heat-radiating portion is thermally connected to the heat-transfer frame member, and heat from the intimately contacting member is conducted to the heat-radiating portion (e.g., element 1, 2, and 6 are all thermally connected to each other).

Higuchi discloses to utilize this structure in order to improve the heat dissipating effectiveness of an image sensor (e.g., paragraph 0055 of the machine translation). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize Higuchi's structure in order to improve the heat dissipating effectiveness of Tanaka's image sensor.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian C. Genco who can be reached by phone at 571-272-7364 or by fax at 571-273-7364. The examiner can normally be reached on Monday thru Friday 8:30am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Groody can be reached at 571-272-7950. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

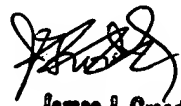
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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the customer service office whose telephone number is 571-272-2600.

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April 5, 2005


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